DEPARTMENT OF THE ARMY
NORTHWESTERN DIVISION, CORPS OF ENGINEERS
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Reply to
Attention of:

06 NOV 2002

Planning and Policy Division

Mr. John Iani
Regional Administrator
Region X, Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Subject: Comments on the Preliminary Draft Columbia/Snake River Mainstem Temperature Total Maximum Daily Loads (TMDLs)

Dear Mr. Iani:

The U. S Army Corps of Engineers (Corps) appreciates the opportunity to review the preliminary draft Columbia/Snake Rivers Temperature TMDL that EPA presented to Federal Action Agencies on September 4, 2002, and released to the public on September 13, 2002. My staff also attended the Columbia/Snake Mainstem Temperature TMDL Implementation meeting hosted by the Washington Department of Ecology on October 16, 2002. We would like to express considerable concern about the methodology used in the development of the preliminary draft temperature TMDL and, if applied as currently structured, the potential implications to the continued existence of Corps projects in the Lower Snake and the Columbia rivers. These dam and reservoir projects in the Federal Columbia River Power System comprise the nations' premiere multipurpose hydroelectric system and the region's navigation waterway.

A primary concern is not only the potential implication to the continued existence of these Pacific Northwest projects, but also the national implications of setting thermal load reductions based upon an analysis where there are very limited practicable operational or structural solutions. As you know, the nine Corps facilities, included in this preliminary draft temperature TMDL, are projects authorized by Congress for multiple purposes including power generation, navigation, flood control, and others, serving the citizens of the Pacific Northwest and the nation. The Corps recommends utilizing an approach in developing an implementable TMDL as recommended in the "Report of the Federal Advisory Committee on the Total Maximum Daily Load Program" by the National Advisory Council for Environmental Policy and Technology that includes "large existing dams" in the baseline load allocation while focusing efforts on operational or feasible structural solutions.

The Corps was authorized to construct, operate, and maintain the Columbia and Snake River projects. The Corps lacks authority to affect the existence of the dams. As you are aware, the government's position in the NWF v. Corps litigation is that court review of compliance with water quality standards is limited to decisions the Corps has the authority to make, that is, Corps

operational decisions affecting water quality, not the effects associated with the existence of the congressionally authorized dams. The plaintiffs in this case have requested the court to order the Corps to issue a new decision within ninety days that contains a schedule of specific measures that will achieve compliance with the water quality standards by December 31, 2003. Their request states "[i]n devising a proposal, the Corps must evaluate the environmental and economic consequences of the alternatives that will result in compliance with the law, including, if necessary, reducing reservoir levels for part or all of the year as well as whole or partial removal of all or some of the four Lower Snake River dams." The Corps is concerned that the current construct of the preliminary draft TMDL will have the unintended consequence of supporting the plaintiffs' contention that dam removal, partial or whole, is an option the Corps should consider, or be ordered to consider by a court, for compliance with water quality standards. The Corps believes the preliminary draft TMDL is inconsistent with the governments' position in the NWF v. Corps case and recommends the temperature TMDL be structured in a manner consistent with Corps authority to implement and consistent with the government's position in the litigation.

Our other major issues are: 1) the failure to include all uses and values in the site potential approach, 2) other than those actions already undertaken by the Corps, there are no practicable operational and structural opportunities within the geographical scope of the TMDL to reduce river water temperatures, and 3) the TMDL should not apply the site potential targets to project facilities such as adult fish ladders where biological studies have not identified a biological problem. Our specific comments are enclosed.

The Northwestern Division has discussed these concerns with our headquarter's office and we request that the technical and policy issues identified in our comments be addressed prior to completing a draft temperature TMDL for public review. We believe there are several options available to address our concerns including a re-examination of standards used to define numerical targets and use of statistical analysis in setting the load allocations. A copy of this letter will be sent to the Bonneville Power Administration, the Bureau of Reclamation, the Oregon Department of Environmental Quality, the Washington Department of Ecology and the Idaho Department of Environmental Quality. We look forward to working with EPA and the states to reach reasonable and implementable TMDLs to effectively improve water quality within the Columbia Basin. If you have questions about these comments, please contact either David Ponganis at 503-808-3828 or Dick Cassidy at 503-808-3928.

Sincerely,

Michael B. White
Director, Civil Works and Management

Enclosure

Corps of Engineers, Northwestern Division
Comments on the Preliminary Draft Temperature TMDL

1. We are concerned about the approach taken in the preliminary draft TMDL to address "natural conditions" in the TMDL. EPA has indicated state standards are required to be used in setting the TMDL and the states' standards are based on natural conditions. There are inconsistent, multiple state and tribal standards, as well as Canadian standards. A case in point is the water temperature standard for the Snake River is 22° C in the State of Idaho dropping to 20° C at the Washington State border. The preliminary draft temperature TMDL uses the most conservative state standard, the Oregon's water temperature standard of 12.8° C (55°F) at River Mile 4, to develop the load allocations for over 700 miles of Columbia River and almost 200 miles of Snake River for the period of October through June. The decision in Arkansas v. Oklahoma, 503 U.S. 91 (1992) is cited as the basis for the rationale that a downstream state standard must be met at the border by the upstream state even though the upstream state may have a less conservative standard. This approach results in the conclusion that the dams, particularly the Bureau of Reclamation's Grand Coulee project and the Corps' John Day project on the Columbia River and the Corps four lower Snake River projects, exceed the natural conditions as expressed as "site potential" in the fall and early winter. The concern expressed in the region about water temperature impacts on fish has focused on summer temperatures. The biological significance of always, or most always, meeting the near-optimal site potential may be too restrictive. The Corps recommends that EPA re-examine the interpretation of the standards being used in the preliminary draft TMDL. This re-examination should consider the waterbody's use and value not only for fish and wildlife, but also for public water supplies, recreation, agriculture, industry, navigation, and other purposes as required by Section 303(c)(2)(A) of the Clean Water Act. There is no evidence that the states, when establishing their water quality standards, or EPA, when drafting the TMDL, considered all of these uses and values.

We understand there is a regional process to develop regional water temperature guidance for states and tribes to develop water quality standards. The draft guidance allows for a use attainability analysis when the numeric criteria or natural background conditions cannot be met due to human impacts that cannot be remedied or would cause widespread economic and social impacts if they were remedied. However, we are concerned that this process may lead to inconsistencies, and an onerous and burdensome process due to the multiple state and tribal jurisdictions. Our position is that EPA should take responsibility for resolving any differences in interpretation of the standards and their application in the TMDL development now.

2. Site potential of near natural conditions is used to represent conditions as close to "natural conditions" cited in the state standards. Site potential is estimated by modeling the river without the main stem dams in place for each day of the year for 30 years of record. We understand the model also assumes all inputs into the model (flows and temperature from tributaries, from Canada and from the Upper Snake River) retain all human activity (dams, agriculture development, etc.). We believe this approach assesses the thermal effects due to the presence or existence of the main stem dams yet does not address potential effects from the tributaries, Canada or the Upper Snake River. The practical effect is that the only alternative within the

geographical scope of the TMDL available to the Corps to meet "site potential" is removal of the main stem dams. The Corps recommends that the thermal effects due to the existence of the dams be included in the baseline load allocation. This recommendation was made to EPA in the July 1998 "Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program" by the National Advisory Council for Environmental Policy and Technology. This report addressed several aspects of TMDL including the issue of waters not meeting water quality standards due to "special challenges" including the presence of large existing dams (not including their operation, maintenance, or potential modifications).

It is our understanding that water temperature TMDLs in other parts of the nation use site potential to estimate potential reductions in water temperature by implementing best management practices and restoration of riparian habitat to provide shading. Whereas, the main stem Columbia and Snake rivers have 15 major dams located in a highly developed high prairie system without natural shading. We believe the application of the site potential approach in the Columbia and Snake rivers is unique and requires further discussion in part due to potential national implications.

3. The preliminary draft temperature TMDL is based on a modeling analysis of pre-dam conditions and post dam conditions. While modeling is appropriate for comparing alternative conditions, the Corps does not believe it is appropriate to use modeling to develop a daily regulatory water temperature criteria. If this data is used, the Corps would recommend that a statistical analysis of the natural variability of the data and variance in the calculated "site potential" be performed. Preliminary statistical analysis employing a null hypothesis of the natural site potential, at the 95% confidence level, performed by our Environmental Resources Development Laboratory (ERDC) show some differences with dams in place are not significant during the one study year evaluated (1995). This is due to both natural variability and to variance in the calculated site potential. Some of the variability can be attributed to data limitations. For instance, a significant number of exceedances could be caused by natural variability that can occur within a 30-year record. Similar relationships are anticipated for the rest of the 30-year site potential record. The Corps recommends that the 99% confidence level be examined for practical application.

4. TMDLs across the nation are being prepared because physical and chemical constituents in water remain at levels that do not meet state standards. The sources of the constituents are typically point sources or nonpoint sources located within the watershed. In some cases, the sources are within the airshed. In the national context of the purpose for TMDLs, we believe that the site potential approach to a TMDL for water temperature is unusual. According to the technical analysis, the major source of heat input to the Columbia River is manifested by the dams storing solar radiation rather than an actual pollutant loading. Therefore, the heat energy in water is from outside the watershed and outside the airshed. Water temperature is not a material; it has neither mass nor does it occupy space. In practice, each measurement of temperature is a measure of the intensity of molecular kinetic energy. All sources of heat, including solar radiation, were analyzed in determining the preliminary draft TMDL. Rather than acknowledging the major cause of heating the Columbia River is solar radiation, as the modeling analysis demonstrated, the preliminary draft attributes the major cause of heating to the dams. Because the ultimate source of energy leading to water temperature changes in the Columbia

River watershed is independent of the dams, options for temperature control are extremely limited. Insolation, cloud cover, humidity, and other similar meteorological factors are beyond the control of dam operators. The Corps is already undertaking available actions to help reduce main stem water temperatures. The Corps operates the four Snake River projects at minimum operating pool in the summer, reducing the surface area exposed to solar radiation, and operates Dworshak Dam to provide cool water releases in late summer to aid juvenile migration and reduce water temperatures in the main stem Snake River. We do not believe there are other operational actions at the projects within the geographical scope of this TMDL to reduce river water temperatures.

5. The preliminary draft temperature TMDL states that the water temperature in the juvenile bypass facilities and adult ladders should also meet the numerical site potential targets. The Corps has funded studies of water temperatures in adult ladders, and the conclusion to date, is that water temperatures in the adult fish ladders are not causing delays in migration. The Corps has also evaluated water temperatures in juvenile bypass facilities and has changed, as appropriate, the operations of these facilities and powerhouse operations to minimize the effects on juvenile salmon. We believe this is the appropriate process to address the biological effects in these bypass facilities rather than relying upon a numerical estimate of site potential.

6. We concur with and incorporate by reference comments made by the Bureau of Reclamation in their letter of October 15, 2002, to EPA, subject: Comments on the Preliminary Draft Columbia/Snake Mainstem Temperature Total Maximum Daily Loads (TMDL) and by Bonneville Power Administration in their letter of November 5, 2002, to EPA, subject: Preliminary Draft Columbia/Snake Mainstem Temperature Total Maximum Daily Loads (TMDL).